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10/001,256	11/02/2001	Kazuaki Watanabe	U 013698-2	8327

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EXAMINER

SHOSHO, CALLIE E

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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/001,256
Filing Date: November 02, 2001
Appellant(s): WATANABE ET AL.

Clifford J. Mass
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 9/10/04.

(1) *Real Party in Interest*

A statement identifying the real party in interest is contained in the brief.

(2) *Related Appeals and Interferences*

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) *Status of Claims*

The statement of the status of the claims contained in the brief is incorrect.

On page 2 of the Advisory Action mailed 6/1/04, examiner indicated that applicants' amendment filed 5/10/04 overcame the 35 USC 112, second paragraph rejection of record with respect to claim 5. This was the only pending rejection against claim 5. However, in the PTOL-303, the examiner inadvertently incorrectly listed claim 5 as rejected not objected to as correctly noted by appellants on page 10 of the Appeal Brief.

Thus, a correct statement of the status of the claims is as follows:

This appeal involves claims 1, 3, and 8-10.

Claims 4 and 5 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 2, 6, and 7 have been canceled.

(4) *Status of Amendments After Final*

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) *Summary of Invention*

The summary of invention contained in the brief is correct.

(6) *Issues*

The appellant's statement of the issues in the brief is correct.

(7) *Grouping of Claims*

Appellant's brief includes a statement that claims 4 and 5 do not stand or fall together with claims 1, 3, and 8-10 and provides reasons as set forth in 37 CFR 1.192(c)(7) and (c)(8).

(8) *Claims Appealed*

A substantially correct copy of the appealed claims appears in the Appendix to the appellant's brief. The minor errors are as follows:

Claim 5 is not an appealed claim.

As set forth above in the "Status of Claims" section, the correct status of claim 5 is objected to as being dependent upon a rejected base claim, but allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

(9) Prior Art of Record

JP 11217525	Bessho et al.	8-1999
5,769,930	Sano et al.	6-1998
5,912,280	Anton et al.	6-1999

(10) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

1. Claims 1, 3, and 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 11217525 in view of Sano et al. (U.S. 5,769,930).

JP 11217525 discloses ink jet ink comprising water, glycol ether, pigment, dispersant, and polymer emulsion prepared by sulfonating diene-based polymer with sulfonating agent such as sulfuric acid or sulfuric anhydride. The ink is printed using ink jet printer to produce a printed image (abstract and paragraphs 5-6, 9-10, 12, 29-30, 39, and 42). Although there is no disclosure of ink cartridge containing the ink, it is clear that an ink jet printer would inherently contain the ink in an ink cartridge prior to printing.

The difference between JP 11217525 and the present claimed invention is the requirement in the claims of specific penetrating agent.

Sano et al., which is drawn to ink jet ink, disclose the use of penetrating agent that is combination of acetylene glycol and triethylene glycol monobutyl ether (col.8,line 62-col.9, line 4).

In light of the above, it therefore would have been obvious to one of ordinary skill in the art to use combination of acetylene glycol and triethylene glycol monobutyl ether in the ink jet ink of JP 11217525 and thereby arrive at the claimed invention.

2. Claims 1, 3, and 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anton et al. (U.S. 5,912,280) in view of Sano et al. (U.S. 5,769,930).

Anton et al. disclose ink jet ink comprising water, pigment, dispersant, and polymer emulsion obtained from sulfonyl group containing monomers. The ink is printed using ink jet printer to produce a printed image (col.1, line 5, col.2, lines 16-17 and 42, col.3, lines 29-31, col.5, lines 7-9 and 45-53, and col.16, lines 51-52). Although there is no disclosure of ink cartridge containing the ink, it is clear that an ink jet printer would inherently contain the ink in an ink cartridge prior to printing.

The difference between Anton et al. and the present claimed invention is the requirement in the claims of penetrating agent.

Sano et al., which is drawn to ink jet ink, disclose the use of penetrating agent, which is combination of acetylene glycol and triethylene glycol monobutyl ether (col.8,line 62-col.9, line 4).

In light of the above, it therefore would have been obvious to one of ordinary skill in the art to use combination of acetylene glycol and triethylene glycol monobutyl ether in the ink jet ink of Anton et al. and thereby arrive at the claimed invention.

(11) *Response to Argument*

Appellants argue that there is no motivation to combine JP 11217525 or Anton et al. with Sano et al. given that Sano et al. teaches away from using claimed ultrapenetrating agent in ink jet inks generally.

It is noted that JP 11217525 discloses ink jet ink comprising water, pigment, dispersant, and polymer emulsion prepared by sulfonating agent such as sulfonic acid or sulfuric anhydride. JP 11217525 discloses that the ink also contains surfactants and polyhydric alcohol ethers. Anton et al. disclose ink jet ink comprising water, pigment, dispersant, and polymer emulsion obtained from sulfonyl group containing monomers. Anton et al. further disclose that the ink contains various types of additives to optimize the properties of the ink. However, there is no disclosure in either reference of ultrapenetrating agent that is a combination of compound of presently claimed formula (1) and triethylene glycol monobutyl ether. This is why either reference is used in combination with Sano et al. which is also drawn to ink jet inks and discloses the use of penetrating agent that is combination of acetylene glycol surfactant identical to compound of presently claimed formula (1) and triethylene glycol monobutyl ether (col.7, line 65-col.8, line 24 and col.8, lines 55-57). Further, Sano et al. disclose that the use of such combination of acetylene glycol surfactant and triethylene glycol monobutyl ether is “particularly preferred” (col.8, line 61-col.9, line 4).

Appellants argue that there is no motivation to combine JP 11217525 or Anton et al. with Sano et al. given that Sano et al. require combination of penetrating agent, i.e. acetylene glycol and triethylene glycol monobutyl ether, and alginate. Appellants argue that Sano et al.'s requirement of such combination is to maintain a balance between the enhancement of the coloring properties of the ink and the inhibition of color bleed of the ink and thus, Sano et al. teach that the penetrating agent is designed specifically for use with the other ingredients of Sano et al. including alginate and do not provide motivation for using the claimed penetrating agent in ink jet inks generally.

However, while it is agreed that Sano et al. require the use of alginate, it is significant to note that in light of the open language of the present claims, i.e. ink "comprising", the present claims are open to the inclusion of additional ingredients including alginate. Further, there is nothing on the record to suggest that alginate is excluded from the scope of the present claims or that the use of alginate would affect the basic and novel characteristics of the claimed invention.

Further, it is very significant to note that the paragraph bridging pages 9-10 of the present specification discloses that the presently claimed first polymer includes alginic acid and alginic acid derivatives.

Additionally, it is noted that while Sano et al. teach that when the ink penetrating capacity is reduced, the coloring properties of the recording image can be enhanced, it is the examiner's position, contrary to appellants' arguments, that such disclosure does not teach away from the use of Sano et al.'s penetrating agent in other inks given that Sano et al. also disclose that ink having reduced penetration has reduced dryability on the recording medium causing color bleeding and hence deterioration of the image quality. In light of this teaching, it would

have been within the skill level of one of ordinary skill in the art to utilize the penetrating agent of Sano et al., i.e. combination of acetylene glycol and triethylene glycol monobutyl ether, in inks so as to balance the enhancement of the coloring properties and prevention of color bleed.

Appellants also argue that a preferred optical density value of a print formed with Sano et al. ink is dependent on the presence of the alginate and point to col.17, line 56-col.18, line 2 and Table 1 of Sano et al. where it is shown that the optical density value of the print is increased by generally not less than 5% by virtue of the presence of the alginate.

However, firstly as stated above, it is noted that the present claims are open to the inclusion of additional ingredients including alginate as disclosed by Sano et al. Secondly, it is noted that Table 1 and col.17, line 56-col.18, lines of Sano et al. pointed to by appellants, compares ink comprising alginate with ink that comprises no alginate. However, while the presence of alginate may produce inks with optical density that increases by not less than 5% (A rating) as noted by appellants, it is noted that the presence of alginate also produces ink with optical density that increases by less than 5% (B rating) which encompasses values as low as 0.1%, 0.5%, 1%, etc. From this data, it is clear that the optical density does not necessarily depend on the presence of alginate. That is, inks that include alginate do not automatically possess superior optical density given that the presence of alginate may increase the optical density by only less than 5%.

Appellants also argue that although surfactants may be used in Anton et al. to alter surface tension and maximize penetration, as set forth in col.8, lines 42-46 of Anton et al., the type and amount of surfactant used need to be carefully selected to avoid pigment dispersion

destabilization and to negate the benefits of the present inks. Given that one of the benefits associated with Anton et al. is high optical density and given that Sano et al. teach that optical density would not be optimal the absence of alginate, appellants argue that there is no motivation to use penetrate described in Sano et al. in the ink of Anton et al.

However, as stated above, the present claims are open to the inclusion of all ingredients including alginate. Further, col.2, lines 10-12 of Anton et al. disclose that the inks may be adapted to the requirements of the particular ink jet printer to provide a balance of properties including high optical density. Thus, given that the present claims are open to the inclusion of additional ingredients and further given that Sano et al. teach using the penetrating agent to maximize penetration while at the same time producing inks with high optical density, it is the examiner's position that the combination of Anton et al. with Sano et al. is proper.

Appellants also argue that even if there were motivation to combine JP 11217525 or Anton et al. with Sano et al., appellants declaration filed 11/12/03 would be sufficient to rebut such *prima facie* case of obviousness.

The declaration filed 11/12/03 compares ink within the scope of the present claims (Ink Set A), i.e. comprising combination of compound of presently claimed formula (1), i.e. acetylene glycol surfactant known under the tradename Surfynol 104, and triethylene glycol monobutyl ether, with ink outside the scope of the present claims (Ink Set G), i.e. comprising diethylene glycol monobutyl ether only. It is shown that inks of the present invention are superior in terms of cohesion differential, gloss differential, glossiness, fixing ability, bronzing, and/or ejection stability.

However, it is the examiner's position that the declaration is not successful in establishing unexpected or surprising results over the cited prior art given that Sano et al. already recognize the criticality of using a combination of acetylene glycol surfactant (compound of presently claimed formula (1)) and triethylene glycol monobutyl ether in order to produce ink with the necessary penetrating capacity. In fact, Sano et al. disclose that combination of acetylene glycol surfactant and triethylene glycol monobutyl ether is "particularly preferred".

Appellants also argue that the declaration shows that ink set comprising the claimed ink composition and having the recited emulsion of sulfonyl group-containing polymer performed better in the evaluations for cohesion differential, gloss differential, glossiness, fixing ability, and bronzing than the ink set of comparative example F which has the same components but without the emulsion of sulfonyl group-containing polymer.

However, it is the examiner's position that the declaration is not successful in establishing unexpected or surprising results over the cited prior art given that each of the primary references, i.e. JP 11217525 and Anton et al., already disclose the use of sulfonyl-group containing polymer.

Appellants also argue that the declaration establishes the criticality of the use in the claimed composition of the claimed emulsion in combination with claimed ultrapenetrating agent to improve properties such as gloss and gloss differential and that these results could not have been expected from the prior art.

However, as set forth in MPEP 2145 II, the "fact that appellant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious", *Ex parte Obiaya*,

277 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985). Thus, although Sano et al. disclose using acetylene glycol and triethylene glycol monobutyl ether to produce ink with necessary penetrating capacity, given that Sano et al. disclose the use of acetylene glycol and triethylene glycol monobutyl ether identical to that presently claimed, it is clear that such combination would intrinsically improve gloss differential and glossiness. That is, given that there is motivation to combine either JP 112175255 or Anton et al. with Sano et al. and given that Sano et al. disclose combination of acetylene glycol and triethylene glycol monobutyl ether as presently claimed, it is clear that the use of acetylene glycol and triethylene glycol monobutyl ether in ink of either JP 11217525 or Anton et al. would intrinsically improve gloss differential and gloss as found in ink of the present invention.

Appellants disagree with examiner's argument as set forth in the preceding paragraph and argue that since in every *prima facie* case the combined references would show all of the claimed limitations, based on the above reasoning by the examiner, there would never be a situation in which rebuttal evidence of unexpected results could be used to overcome a *prima facie* case of obviousness.

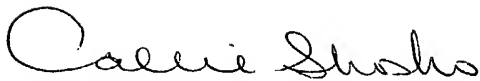
While the examiner agrees that rebuttal evidence of unexpectedly advantageous results is probative of nonobviousness, in the present situation, however, such evidence is not persuasive given that Sano et al. already disclose the criticality of utilizing combination of compound of presently claimed formula (1) and triethylene glycol monobutyl ether and thus, there is motivation to combine JP 11217525 or Anton et al. with Sano et al. In light of the motivation and given that the combination of either JP 11217525 with Sano et al. or Anton et al. with Sano et al.

disclose ink as presently claimed, it is clear that such inks would intrinsically possess the same gloss and gloss differential as ink of the present invention.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Callie E. Shosho
Primary Examiner
Art Unit 1714

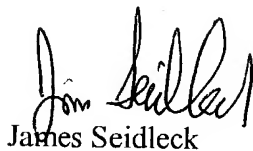


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November 18, 2004

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